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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/616,288 | 07/10/2003 | Taro Yokoyama | 59494.00004 | 1576 |
| 32294 | 7590 | 04/21/2008 | EXAMINER | |
| SQUIRE, SANDERS & DEMPSEY L.L.P. 8000 TOWERS CRESCENT DRIVE 14TH FLOOR VIENNA, VA 22182-2700 | | | | TUCKER, WESLEY J |
| ART UNIT | | PAPER NUMBER | | |
| 2624 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/616,288 | YOKOYAMA, TARO | |
| | Examiner | Art Unit | |
| | WESLEY TUCKER | 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 March 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 5-7 and 12-14 is/are allowed.
 6) Claim(s) 1-4 and 8-11 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 15 January 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3-28-08</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on March 28th 2008 has been entered.

Information Disclosure Statement

2. Applicant's response filed March 28th 2008 has been entered and made of record. Applicant has filed an IDS after allowance. The IDS has been considered and the submitted reference to Watanabe has been found to read on at least some of the claims. The case has therefore been withdrawn from issue and a new rejection in view of the Watanabe reference is presented below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by the submitted reference titled “Estimation of Pointing Gestures Using Multiple Cameras” to Watanabe, et al., hereinafter referred to as Watanabe.

With regard to claim 1, Watanabe discloses **a pointing position detection device which detects the presence of a human being from an image which is photographed by a plurality of cameras, and which detects a position at which the human being is pointing** (Section 4.1, Watanabe discloses that multiple cameras are used to determine the pointing direction using eyes, face and fingertip positions in the images), **comprising:**

a section which detects a head position of the human being, including at least distance information, based upon the image (Section 4.1, Watanabe teaches that the positions of the face and fingertip are found in three-dimensional space using stereo matching, which includes some sort of distance measure. Further in Section 4.2, Watanabe discloses that the eyes of the extracted face or head portion are identified using respective positional relationships which are also a function of distance in the image space);

a section which detects a hand position of the human being, including at least distance information, based upon the image (Section 4.2, Watanabe discloses finding the position of the fingertip of the hand);

a section which calculates a position of a hand tip and a main axis of the hand, based upon the hand position which has been detected (Section 4.2, Watanabe discloses that the fingertip is determined by finding the hand first and the centroid of the hand. The fingertip is then identified as the points most distant from the centroid of the hand. The line that measures the distance from the centroid of the hand to the fingertip is interpreted as a main axis of the hand); ***and***

a section which detects a direction in which the human being is pointing, based upon the head position which has been detected and the position of the hand tip and the main axis of the hand which have been calculated, wherein the position at which the human being is pointing is detected, based upon the detected direction in which the human being is (Section 4.4, Watanabe discloses that the face and eye position information is used in combination with the fingertip pointing direction to determine the pointing direction of the individual).

With regard to claim 2, Watanabe discloses ***a pointing position detection device as described in claim 1, further comprising a section which calculates a position of an eye, based upon the head position which has been detected, and wherein the section for detecting the direction in which the human being is pointing detects the direction in which the human being is pointing, based upon the position of the eye, the position of the hand tip, and the main axis of the hand*** (Section 4.2, Watanabe uses both eye positions from the extracted face and fingertip data to determine pointing direction).

With regard to claim 3, Watanabe discloses **a pointing position detection device as described in claim 1, wherein the section for detecting the hand position further comprises a section which sets a predetermined search region within the image, based upon the position of the hand** (Section 4.2, Watanabe teaches that certain cameras are used to capture hand information according to the camera used to capture the face information because according to face information a better image of the hand is likely to be determined by a certain camera corresponding to a likely three-dimensional image space).

With regard to claim 4, Watanabe discloses **a pointing position detection device as described in claim 3, wherein the main axis of the hand is detected, based upon the distribution of picture element data which make up the image of the hand present within the search region** (Section 4.2, Watanabe discloses finding the centroid of the hand which is basically a mass of flesh colored pixels. According to the distribution and shape of the mass of flesh colored pixels, both the centroid and the fingertip of the hand are identified).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and U.S. Patent 5,409,306 to Sasaki, et al.

Claims 8-11 simply add that limitations previously discussed are embodied on an autonomous robot. Autonomous robots are well known in the image processing art to be used with image detection processes. Sasaki for example teaches an autonomous robot for imaging and determining spatial relationships in 3D space imaging and tracking (column 4, lines 60-67 and column 5, lines 1-25). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to implement the 3D image processing taught by Watanabe with an autonomous robot taught by Sasaki.

Allowable Subject Matter

5. Claims 5-7 and 12-14 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 5-7 and 12-14 all contain the limitation of "***wherein the position at which the human being is pointed is detected by calculating the intersection of the direction in which the human being is pointing and a predetermined object which is present within the image***". Watanabe disclose using the intersection of the eye

pointing direction and fingertip point direction with a calculated distance arch (Section 4.4). However, Watanabe does not disclose calculating the intersection of the direction the human being is pointing and a predetermined object which is present in the image. The distance arc disclosed by Watanabe is not an object present in the image. No other found prior art of reference teaches or fairly suggests the particular intersection as now recited in claims 5-7 and 12-14.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WESLEY TUCKER whose telephone number is (571)272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wes Tucker/
Examiner, Art Unit 2624